

#5

A9

SEQUENCE LISTING



<110> HEMERLY, ADRIANA

FERREIRA, PAULO

ROMBAUTS, STEPHANE

<120> PLANT DNA REPLICATION MODULATING PROTEINS

<130> 217943US0XCONT

<140> US 10/036,492

<141> 2002-01-07

<150> EP 99202214.5

<151> 1999-07-05

<160> 35

<170> PatentIn version 3.1

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<211> 889

<212> PRT

<213> Arabidopsis thaliana

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 Phe Gln Gly Ser Pro Asn Leu Val Lys Tyr Leu Cys Ser Ile Pro Asn  
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 Lys His Ser Arg Glu Asn Ala Glu Gln Glu Glu Leu Glu Leu Met Pro  
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Tyr Glu Arg Pro Glu Ile Gly Asp Phe Gln Ile Ala Asp Asn Gln Ile  
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Leu Ile Glu Glu Gly Asp Asp Lys Asn Lys Lys Asp Leu Phe Pro Lys  
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Gly Glu Ile Gln Thr Asp Ser Val Gln Ser Asp Pro Val Ala Ser Leu  
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Glu Asp Leu Leu Val Asp Asp His Thr Val Asp Ile Val Ser Thr Pro  
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Asp Arg Glu Leu Pro Leu Lys Pro Ser Ala Thr Glu Ala Asn Gln Asp  
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Ser Lys Thr Tyr Ser Cys Ser Pro Glu Ile Lys His Thr Arg Lys Ser  
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Asp Gln Lys Asp Gln Ala Lys His Asn Thr Ile Pro Asp Phe Asp Ser  
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Tyr Thr Ile Val Glu Glu Glu Gly Ser Gly Gly Tyr Gly Ile Val Tyr  
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Lys Ala Thr Arg Lys Thr Asp Gly Thr Glu Phe Ala Ile Lys Cys Pro  
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His Val Gly Ala Gln Lys Tyr Tyr Val Asn Asn Glu Ile Arg Met Leu  
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Glu Lys Glu Leu Leu Tyr Leu Thr Pro Met Pro Leu Cys Ser Asn Gly  
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Arg Pro Glu Ala Gly Asp Val Ile Glu Lys Lys Asp Gly Pro Cys Ser  
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Gly Thr Lys Gly Phe Arg Ala Pro Glu Val Cys Phe Arg Ser Leu His  
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Gln Gly Pro Lys Ile Asp Val Trp Ser Ala Gly Val Thr Leu Leu Tyr  
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Leu Ile Met Gly Arg Thr Pro Phe Thr Gly Asp Pro Glu Gln Asn Ile  
755 760 765

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785 790 795 800

Arg Tyr Leu Lys Gly Met Glu Leu Arg Lys Trp Cys Glu Leu Asn Thr  
805 810 815

Lys Arg Arg Glu Phe Leu Asp Val Ile Pro Leu Ser Leu Leu Asp Leu  
820 825 830

Val Asp Lys Cys Leu Thr Val Asn Pro Arg Arg Arg Ile Ser Ala Glu  
835 840 845

Asp Ala Leu Lys His Asp Phe Phe His Pro Val His Glu Thr Leu Arg  
850 855 860

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<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Peptide

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<223> Synthetic Peptide

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<223> Synthetic Peptide

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<211> 728

<212> PRT

<213> Arabidopsis thaliana

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Phe Met Phe Thr Asn Ala Ile Phe Leu Cys Glu Leu Leu Leu Ala Gln  
20 25 30

Phe Pro Ser Glu Val Asn Leu Gln Leu Leu Ala Arg Cys Tyr Leu Ser  
35 40 45

Asn	Ser	Gln	Ala	Tyr	Ser	Ala	Tyr	Tyr	Ile	Leu	Lys	Gly	Ser	Lys	Thr	50	55	60	
Pro	Gln	Ser	Arg	Tyr	Leu	Phe	Ala	Phe	Ser	Cys	Phe	Lys	Leu	Asp	Leu	65	70	75	80
Leu	Gly	Glu	Ala	Glu	Ala	Ala	Leu	Leu	Pro	Cys	Glu	Asp	Tyr	Ala	Glu	85	90	95	
Glu	Val	Pro	Gly	Gly	Ala	Ala	Gly	His	Tyr	Leu	Leu	Gly	Leu	Ile	Tyr	100	105	110	
Arg	Tyr	Ser	Gly	Arg	Lys	Asn	Cys	Ser	Ile	Gln	Gln	Phe	Arg	Met	Ala	115	120	125	
Leu	Ser	Phe	Asp	Pro	Leu	Cys	Trp	Glu	Ala	Tyr	Gly	Glu	Leu	Cys	Ser	130	135	140	
Leu	Gly	Ala	Ala	Glu	Glu	Ala	Ser	Thr	Val	Phe	Gly	Asn	Val	Ala	Ser	145	150	155	160
Gln	Arg	Leu	Gln	Lys	Thr	Cys	Val	Glu	Gln	Arg	Ile	Ser	Phe	Ser	Glu	165	170	175	
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Thr	Gly	Leu	Ser	Gln	Thr	Glu	His	Ile	Pro	Gly	Glu	Asn	Gln	Gln	Asp	195	200	205	
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Gln	Leu	Ser	Thr	Asn	Gly	Trp	Asp	Leu	Asn	Thr	Pro	Ser	Pro	Val	Leu	225	230	235	240
Leu	Gln	Val	Met	Asp	Ala	Leu	Pro	Pro	Leu	Leu	Leu	Lys	Asn	Met	Arg	245	250	255	



Arg Pro Ala Val Glu Gly Ser Leu Met Ser Val His Gly Val Arg Val  
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Arg Arg Arg Asn Phe Phe Ser Glu Glu Leu Ser Ala Glu Ala Gln Glu  
275 280 285

Glu Ser Gly Arg Arg Arg Ser Ala Arg Ile Ala Ala Arg Lys Lys Asn  
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Pro Met Ser Gln Ser Phe Gly Lys Asp Ser His Trp Leu His Leu Ser  
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Pro Ser Glu Ser Asn Tyr Ala Pro Ser Leu Ser Ser Met Ile Gly Lys  
325 330 335

Cys Arg Ile Gln Ser Ser Lys Glu Val Ile Pro Asp Thr Val Thr Leu  
340 345 350

Asn Asp Pro Ala Thr Thr Ser Gly Gln Ser Val Ser Asp Ile Gly Ser  
355 360 365

Ser Val Asp Asp Glu Glu Lys Ser Asn Pro Ser Glu Ser Ser Pro Asp  
370 375 380

Arg Phe Ser Leu Ile Ser Gly Ile Ser Glu Val Leu Ser Leu Leu Lys  
385 390 395 400

Ile Leu Gly Asp Gly His Arg His Leu His Met Tyr Lys Cys Gln Glu  
405 410 415

Ala Leu Leu Ala Tyr Gln Lys Leu Ser Gln Lys Gln Tyr Asn Thr His  
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Trp Val Leu Met Gln Val Gly Lys Ala Tyr Phe Glu Leu Gln Asp Tyr  
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Phe Asn Ala Asp Ser Ser Phe Thr Leu Ala His Gln Lys Tyr Pro Tyr  
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Ala Leu Glu Gly Met Asp Thr Tyr Ser Thr Val Leu Tyr His Leu Lys  
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Glu Glu Met Arg Leu Gly Tyr Leu Ala Gln Glu Leu Ile Ser Val Asp  
485 490 495

Arg Leu Ser Pro Glu Ser Trp Cys Ala Val Gly Asn Cys Tyr Ser Leu  
500 505 510

Arg Lys Asp His Asp Thr Ala Leu Lys Met Phe Gln Arg Ala Ile Gln  
515 520 525

Leu Asn Glu Arg Phe Thr Tyr Ala His Thr Leu Cys Gly His Glu Phe  
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Ala Ala Leu Glu Glu Phe Glu Asp Ala Glu Arg Cys Tyr Arg Lys Ala  
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Leu Gly Ile Asp Thr Arg His Tyr Asn Ala Trp Tyr Gly Leu Gly Met  
565 570 575

Thr Tyr Leu Arg Gln Glu Lys Phe Glu Phe Ala Gln His Gln Phe Gln  
580 585 590

Leu Ala Leu Gln Ile Asn Pro Arg Ser Ser Val Ile Met Cys Tyr Tyr  
595 600 605

Gly Ile Ala Leu His Glu Ser Lys Arg Asn Asp Glu Ala Leu Met Met  
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Met Glu Lys Ala Val Leu Thr Asp Ala Lys Asn Pro Leu Pro Lys Tyr  
625 630 635 640

Tyr Lys Ala His Ile Leu Thr Ser Leu Gly Asp Tyr His Lys Ala Gln  
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Lys Val Leu Glu Glu Leu Lys Glu Cys Ala Pro Gln Glu Ser Ser Val  
660 665 670

His Ala Ser Leu Gly Lys Ile Tyr Asn Gln Leu Lys Gln Tyr Asp Lys  
675 680 685

Ala Val Leu His Phe Gly Ile Ala Leu Asp Leu Ser Pro Ser Pro Ser  
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Asp Ala Val Lys Ile Lys Ala Tyr Met Glu Arg Leu Ile Leu Pro Asp  
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Glu Leu Val Thr Glu Glu Asn Leu  
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<212> PRT

<213> Artificial Sequence

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Asn Gln Ala Tyr Ser Ala Tyr His Leu Leu Lys Gly Thr Gln Met Ala  
50 55 60

Gln Ser Arg Tyr Leu Phe Ala Leu Ser Cys Phe Gln Met Asp Leu Leu  
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Asn Glu Ala Glu Ser Ala Leu Cys Pro Val Asn Glu Pro Gly Ala Glu  
85 90 95

Ile Pro Asn Gly Ala Ala Gly His Tyr Leu Leu Gly Leu Ile Tyr Lys  
100 105 110

Lys Asn Ala Ala Gln Gln Phe Lys Gln Ser Leu Thr Ile Asp Pro Leu  
115 120 125

Leu Trp Ala Ala Tyr Glu Glu Leu Cys Ile Leu Gly Ala Ala Glu Glu  
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Tyr

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Phe	Met	Phe	Thr	Asn	Ala	Ile	Phe	Leu	Cys	Glu	Leu	Leu	Leu	Ala	Gln
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Phe	Pro	Ser	Glu	Val	Asn	Leu	Gln	Leu	Leu	Ala	Arg	Cys	Tyr	Leu	Ser
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Asn	Ser	Gln	Ala	Tyr	Ser	Ala	Tyr	Tyr	Ile	Leu	Lys	Gly	Ser	Lys	Thr
	50					55					60				

Pro	Gln	Ser	Arg	Tyr	Leu	Phe	Ala	Phe	Ser	Cys	Phe	Lys	Leu	Asp	Leu
65					70					75					80

Leu	Gly	Glu	Ala	Glu	Ala	Ala	Leu	Leu	Pro	Cys	Glu	Asp	Tyr	Ala	Glu
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Glu	Val	Pro	Gly	Gly	Ala	Ala	Gly	His	Tyr	Leu	Leu	Gly	Leu	Ile	Tyr
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Arg	Tyr	Ser	Gly	Arg	Lys	Asn	Cys	Ser	Ile	Gln	Gln	Phe	Arg	Met	Ala
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Leu	Ser	Phe	Asp	Pro	Leu	Cys	Trp	Glu	Ala	Tyr	Gly	Glu	Leu	Cys	Ser
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 165 170 175

Ala Thr Ile Asp Gln Ile Thr Asp Ser Asp Lys Ala Leu Lys Asp Thr  
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Gly Leu Ser Gln Thr Glu His Ile Pro Gly Glu Asn Gln Gln Asp Leu  
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Lys Ile Met Gln Gln Pro Gly Asp Ile Pro Pro Asn Thr Asp Arg Gln  
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Leu Ser Thr Asn Gly Trp Asp Leu Asn Thr Pro Ser Pro Val Leu Leu  
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Gln Val Met Asp Ala Pro Pro Pro Leu Leu Leu Lys Asn Met Arg Arg  
 245 250 255

Pro Ala Val Glu Gly Ser Leu Met Ser Val His Gly Val Arg Val Arg  
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Arg Arg Asn Phe Phe Ser Glu Glu Leu Ser Ala Glu Ala Gln Glu Glu  
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Tyr	Arg	Lys	Ala	Leu	Gly	Ile	Asp	Thr	Arg	His	Tyr	Asn	Ala	Trp	Tyr	
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Met Cys Tyr Tyr Gly Ile Ala Leu His Glu Ser Lys Arg Asn Asp Glu  
595 600 605

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Leu Pro Lys Tyr Tyr Lys Ala His Ile Leu Thr Ser Leu Gly Asp Tyr  
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His Lys Ala Gln Lys Val Leu Glu Glu Leu Lys Glu Cys Ala Pro Gln  
645 650 655

Glu Ser Ser Val His Ala Ser Leu Gly Lys Ile Tyr Asn Gln Leu Lys  
660 665 670

Gln Tyr Asp Lys Ala Val Leu His Phe Gly Ile Ala Leu Asp Leu Ser  
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35 40 45

Asn Gln Ala Tyr Ser Ala Tyr His Leu Leu Lys Gly Thr Gln Met Ala  
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Gln Ser Arg Tyr Leu Phe Ala Leu Ser Cys Phe Gln Met Asp Leu Leu  
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Asn Glu Ala Glu Ser Ala Leu Cys Pro Val Asn Glu Pro Gly Ala Glu  
85 90 95

Ile Pro Asn Gly Ala Ala Gly His Tyr Leu Leu Gly Leu Ile Tyr Lys  
100 105 110

Lys Asn Ala Ala Gln Gln Phe Lys Gln Ser Leu Thr Ile Asp Pro Leu  
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Glu	Arg	Asn	Ser	Thr	Ser	Thr	Lys	Asn	Thr	Ser	Ser	Glu	Asp	Tyr	Ser
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Pro	Arg	Gln	Ser	Lys	His	Thr	Gln	Ser	His	Gly	Leu	Lys	Asp	Ile	Ser
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Ser	Ala	Asp	Ser	Gly	Ala	Asn	Ile	Asn	Ser	Ser	Val	Ala	Thr	Val	Ser
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Glu Gly Cys Arg Leu Ser Tyr Met Tyr Arg Cys Gln Glu Ala Leu Asp  
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Thr Tyr Met Lys Leu Pro His Lys His Tyr Asn Thr Gly Trp Val Leu  
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Ser Gln Val Gly Lys Ala Tyr Phe Glu Leu Ile Asp Tyr Leu Glu Ala  
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Glu Lys Ala Phe Arg Leu Ala Arg Leu Ala Ser Pro Tyr Cys Leu Glu  
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Gly Met Asp Ile Tyr Ser Thr Val Leu Tyr His Leu Lys Glu Asp Met  
 485 490 495

Lys Leu Ser Tyr Leu Ala Gln Glu Leu Ile Ser Thr Asp Arg Leu Ala  
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Pro Gln Ser Trp Cys Ala Met Gly Asn Cys Tyr Ser Leu Gln Lys Asp  
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His Glu Thr Ala Leu Lys Asn Phe Leu Arg Ala Val Gln Leu Asn Pro  
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Arg	Phe	Ala	Tyr	Ala	His	Thr	Leu	Cys	Gly	His	Glu	Tyr	Thr	Thr	Leu
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Glu	Asp	Phe	Glu	Asn	Gly	Met	Lys	Ser	Tyr	Gln	Asn	Ala	Leu	Arg	Val
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Arg	Gln	Glu	Lys	Leu	Glu	Phe	Ser	Glu	His	His	Phe	Arg	Met	Ala	Phe
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Leu	Ile	Asn	Pro	Ser	Ser	Ser	Val	Ile	Met	Ser	Tyr	Leu	Gly	Thr	Ser
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Ala	Ile	Val	Ala	Asp	Arg	Lys	Asn	Pro	Leu	Pro	Met	Tyr	Gln	Lys	Ala
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Met	Gly	Arg	Ile	Tyr	Lys	Arg	Arg	Asn	Met	His	Asp	Lys	Ala	Met	Leu
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